College Avenue Corridor: The Future Towards Transit Oriented Development in Indianapolis

An Honors Thesis (PLAN202)

by

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Abstract

This thesis is a further exploration of a site planning studio project within the College of Architecture and Planning. As part of the original studio project, each student designed a new development proposal for a historical transit corridor in Indianapolis. This thesis explores the ideas of transit-oriented development and its effects on the designs and implementation of the development proposals created at the intersections of 38th Street and College Avenue and 49th Street and College Avenue. Transit-oriented development is a new design/transportation theory and practice that looks into designing dense, livable, mixed-use communities around new transit corridors. Admittedly, this is actually an old theory that we as designers, planners, and government officials are retrofitting to today's modern urban demands. One example of a new transit project in the United States is the regional long-term plan that Indianapolis is looking to install. This system involves developing five new transit lines throughout the city and surrounding counties. Someday, this transit system will advance Indianapolis' standing as a modern and advanced city alongside other successful transit communities such as San Francisco, Portland and Chicago. The system as proposed will improve the quality of life for those who reside in the metropolitan area and create new opportunities for guests and tourists visiting Indianapolis. This thesis examines the details of this city transit system and specifically the red line's relationship with the College Avenue Corridor.

Acknowledgments

We would like to thank Vera Adams for advising us throughout this thesis process and further thank her for the inspiring idea of the original studio project that has stayed with both of us since sophomore year and became the basis for this thesis.

Personal Statement

As previously stated, this thesis evolved from a previous studio project in which each student developed a plan based on the idea of a new transit corridor along College Avenue. To expand on this project, I thought researching the specifics of the new transit lines that Indianapolis is proposing would be an appropriate next step to understand the design of our developments. With this in mind, I expanded on explaining the specific red line transit system proposed to run along College Avenue. Finally, I researched the legislation that will allow this massive transit project to happen.

In Ball State's College of Architecture and Planning, many students feel they have a strong focus on the design aspect of a project and little on the actual specifics on the implementation of the project. This thesis is a further exploration of the details of the proposed transit system project currently happening in Indianapolis and how this system will make further developments, such as our designs along College Avenue, possible in the future.

Transit-Oriented Development

Transit-oriented development has many definitions and cannot be properly explained by one definition alone because one definition could never encompass all of the complex components of transit-oriented development. The Center for Transit-Oriented Development defines TOD as, "Creating attractive, walkable, sustainable communities that allow residents to have housing and transportation choices and to live convenient, affordable, pleasant lives." (2013) To begin defining TOD, it is important to understand what transit is, according to Jannett Walker, "Public transit is regularly scheduled vehicle trips open to all paying passengers, with the capacity to carry multiple passengers whose trips have different origins, destinations, and purposes." (13) Transit is an opportunity for all individuals regardless of socio-economic status to be able to move around and reach almost all their destinations without the need of a personal vehicle. This is incredibly important in communities because it increases the quality of life for all individuals and creates healthier more livable communities.

Transit-oriented development is structured around a comprehensive, effective, and user-friendly group of transit systems that serve many locations. Currently in America three trends are encouraging and supporting transit-oriented development: the resurgence of investment in America's downtowns, the continuing growth and maturity of America's suburbs, and the renewed interest in rail travel and rail investment. (Dittman and Ohland, 2004, 22) All of these trends point to a new potential market for walkable, mixed-use urban developments around new or existing rail stations. Any successful TOD will need to be, "Mixed-use, walkable, have a high location quotient, and have efficient development that balances sufficient density with convenient transit service." (Dittman and Ohland, 2004, 44)

It is important to list criteria by which TODs can be evaluated. Location efficiency is one such criterion and means "The conscious placement of homes in proximity to transit systems is crucial to building a region that is both equitable and efficient."(Dittman and Ohland, 2004, 23) The three key components of location efficiency are density, transit accessibility, and pedestrian friendliness. (Dittman and Ohland, 2004) These three components, in the correct capacity, have proven to be key elements in a successful transit system. The second criterion is a rich mix of choices; a neighborhood with a plethora of choices is the defining feature of a great neighborhood. (Dittman and Ohland, 2004) It provides all residents with options including housing, retail, workspaces, and third places. The third criterion is value capture since "Currently transportation is the second-highest consumer expenditure behind housing." (Dittman and Ohland, 2004, 26) Therefore a successful TOD would capture the value that was not being spent on transportation and ensure it was reinvested in the surrounding economy. This can be done through high quality transit service, strong connections, community amenities, a dedication to place making, and attention to financial returns. (Dittman and Ohland, 2004) Capturing value should be a key objective of any TOD.

A fourth criterion for evaluating a TOD is place making, creating a healthy, safe, and entertaining pedestrian environment. There are many ways to accomplish this including creating places for people that are local, attractive, and comfortable; enriching the existing environment that is already in place; making connections between places; working with the landscape to create a balance of natural and man-made places; creating a mix of uses and forms that are enjoyable and stimulating to a wide variety of users; managing the investment of projects so they are economically viable; and designing for change in the flexibility of the future. (Dittman and Ohland, 2004) The final criterion is resolving tension between node and place. This means, "The

tension that exists between the role of a transit station or a stop as a node in a regional transportation network and the station's role as a place in a neighborhood." (Dittman and Ohland, 2004, 32) This creates a station that is not only a place for transit interaction, but also is a beneficial place for the community. Meaning it provides a third place, jobs, or a livable space that can be used by not only the transit users but also those who live around the TOD. In short, it creates destinations.

Transit-oriented development is a restructure of a historic style of development, the street car suburb, that has taken a modern twist. TODs result in places and regions that are location-efficient neighborhoods that support economic growth, increase housing affordability, provide a mix of uses, and create various densities all within a half-mile of the various transit stops. (Dittman and Ohland, 2004) Most often when transit is installed for every one dollar of public investment spent, there is a return of three dollars of private investment. (S. Northup, personal communication, October 11, 2013) Therefore the return in private monies more than doubles the public investment. TOD also strives to create places for community life, is a catalyst for renewal and revitalization of neighborhoods and downtowns, creates opportunities for entrepreneurship and economic development, makes communities safer and more comfortable, creates more connected communities which are more accessible and convenient, and shapes growth.

49th and College Avenue Design by Jennifer Clawson

This thesis is a further development and inspection of transit-oriented development. The original project from which this thesis stems was a development in the second-year site-planning studio of the urban planning program. The project was an urban infill development, which focuses on the College Avenue Corridor in Indianapolis. Each student concentrated on specific intersections along the historic streetcar line.

Our project began with site analysis of the whole corridor and neighborhood. This is a crucial step in urban planning because it allows designers to have an understanding of the area they will be working with and ultimately having a large impact on. Once the initial site analysis is complete, planners can begin exploring design options and concepts for the site.

My specific intersection was 49th Street and College Avenue; which is a transition area for the neighborhood. A mixture of races, housing type, income, education, and age is present throughout the neighborhood. This specific intersection is a good representation of the whole Meridian-Kessler Neighborhood because it is such a diverse combination of people. After the initial observations, we concluded that the intersection of 49th and College had significant potential for future development.

Facing north from the center of the intersection of 49th and College Avenue, it is easy to see the potential for development. More specifically, the northwest corner held the most potential because it was a vacant lot and had two vacant buildings, meaning it is an opportunity site. The northeast corner of the intersection had recently undergone redevelopment and houses three successful business including a restaurant, bar, and, cleaners. Unfortunately on the corner there was a liquor store that the neighborhood thought was a liability, but at the time the owner was

not interested in selling. On the southeast corner of the intersection, there was a fast food restaurant that the neighborhood also thought was an under-use of the property's current value. Finally on the southwest corner, there is a craft beer brewery, a pet store, and a second cleaner.

With site analysis complete, the second phase of the project focused on developing three design alternatives for the whole intersection. My three design alternatives focused on single-use design and historic preservation, horizontal mixed-use and the neighborhood's desires, and vertical mixed-use and preserving character. The first alternative saved existing successful buildings and placed single-use, one story, structures on the northwest and southeast corners of the intersection. This implementation was congruent with the scale and density of the current neighborhood. The second alternative focused on horizontal mixed-use and the specific desires of the neighborhood. The new proposed structures would create a two-story building with retail on the ground floor and residential on the second floor. This alternative would be implemented in the northwest and northeast corners and would create small pedestrian spaces as well as daytime activities. Finally, the third alternative focused on vertical mixed use and character. The design added structures with retail on the first floor, office on the second, and residential on the third and fourth floors. This proposal develops a much higher density than what currently exists in the neighborhood. For my final design, I chose a mixture of the second and third alternatives that I believe provided the proper mixed use for the neighborhood, allowed for sufficient parking, and fulfilled the desires of the neighbors with whom we met.

Instead of focusing on the entire intersection, the final concept plan focused on one specific corner. I created a plan for the northwest corner of the site because its vacant lot provided the most potential out of all of the four corners. The three objectives for my final design

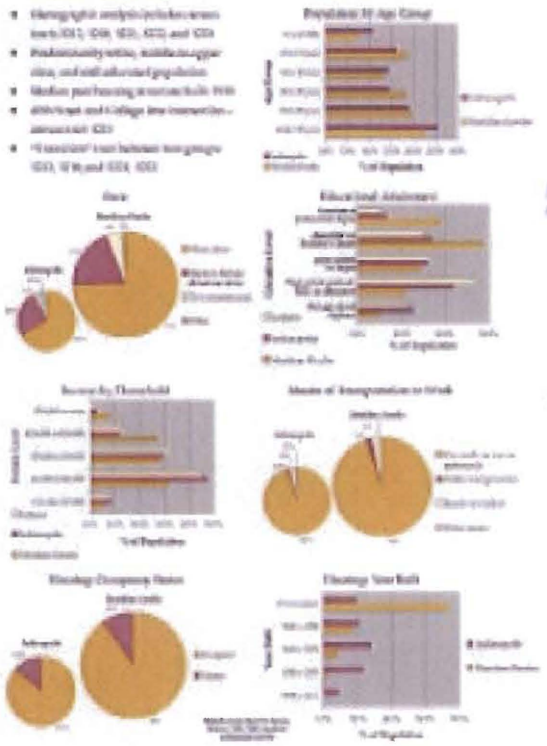
were to keep to the context of the neighborhood, create a vibrant streetscape and pedestrian space, and preserve historical structures.

The new design included a four-story structure with retail, office, and residential on ascending floors. The office and residential space was set back from the street wall to give the development a more human scale to those walking on the street. This also helped the structure fit into the context of the Meridian-Kessler Neighborhood. The design added a total of 11,700 square feet of retail space, 16,000 square feet of office space, and 35,200 square feet of residential space, including apartments and retirement apartments. The design included a pedestrian plaza in the center of the structure with outdoor seating and a fountain. The street wall would have been composed of local retail shops or restaurants, adding dynamic and activities to the area as well as the perception of safety because the density increases the number of "eyes on the street." The sidewalk would be separated into three zones that include the tree lawn to separate pedestrians from College Avenue, the walking zone, and the activity zone where there would be outdoor seating.

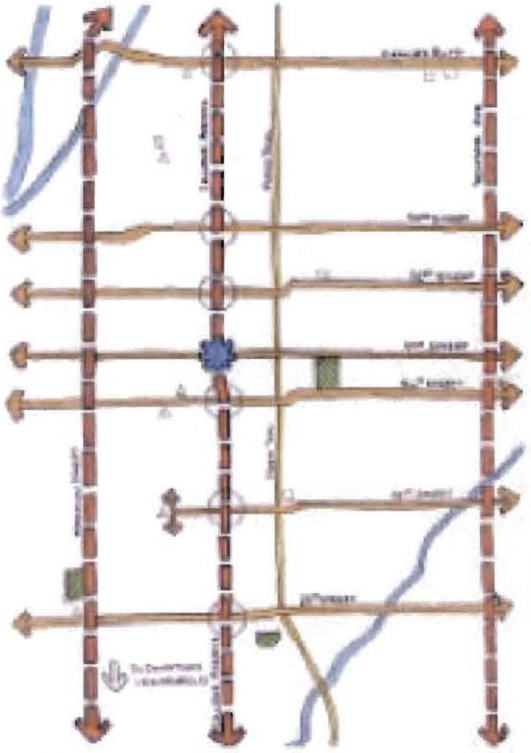
This design was also created with the idea of a streetcar line stop that would sit in the center of College Avenue. For the particular intersection of 49th the streetcar would stop in the middle of the block adjacent to the pedestrian plaza. Finally there is one structure located on the southern corner of the site that is historic and should be preserved. My design saved this building and transformed it into retail. The parking would be located behind the new development. The design also relies on the current on street parking and has lower standards of parking quantity because it is on a transit corridor. Overall the design strove to create a safe and enjoyable place to live and work and used this precious property to its full potential while still fitting into the context of the historic Meridian-Kessler Neighborhood.

Meridian-Kessler Neighborhood | Site Plan Analysis

Demographics: Who Lives Here?



Meridian-Kessler Corridor



College Avenue: Transit Corridor:

- College Ave and Central Ave had streetcar lines from 1892 to 1953
- Built on bridge 1931
- Development increased around streetcar stops, forming these "nodes" of activity
- Now, bulky buildings and street-cut pollution
- In spite of bulky, it is still an auto-oriented neighborhood

Land Use

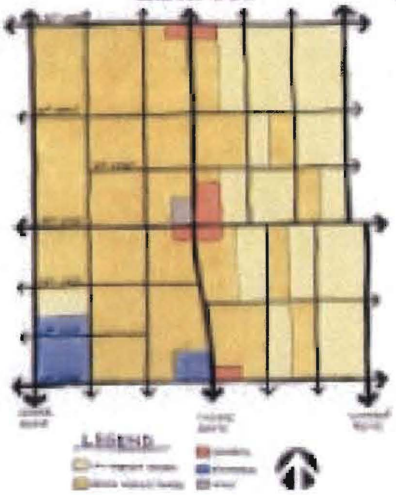
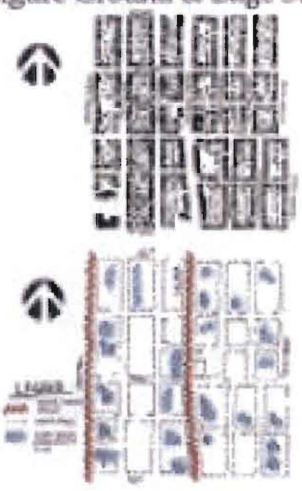
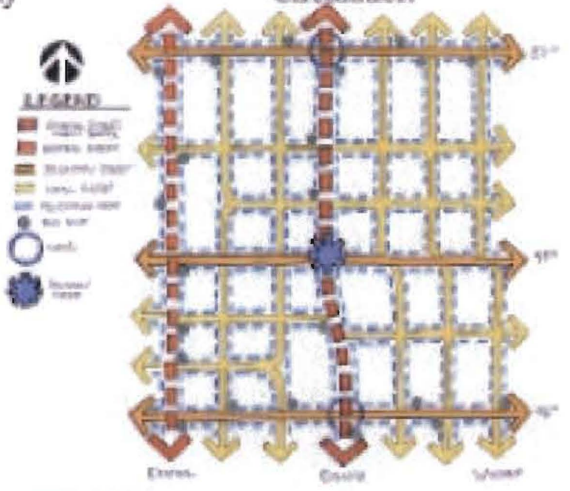


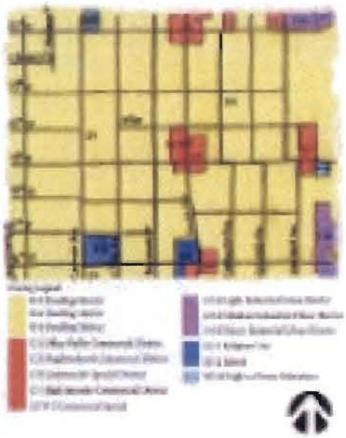
Figure Ground & Edge Study



Circulation

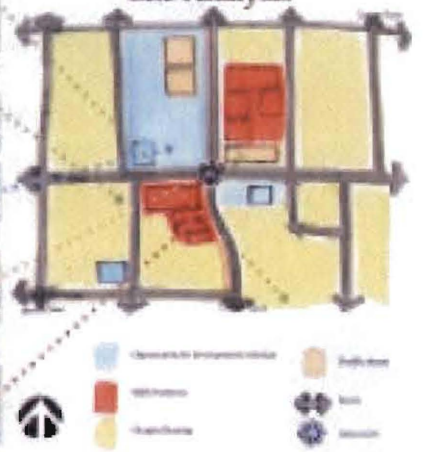


Zoning



SWOT Analysis

Site Analysis



Jeni Clawson | Mandy Dyer | Allison Johnson | Drew Weinzapfel | PLAN 202 | Spring 2012

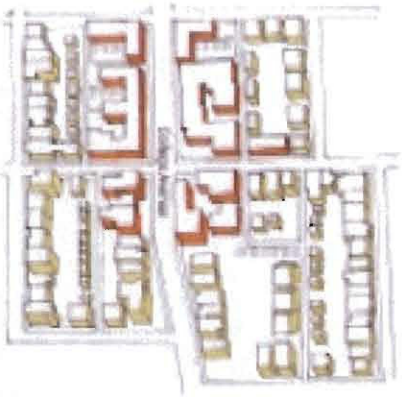
| Intersection Design Alternatives | 49th Street and College Aveune |

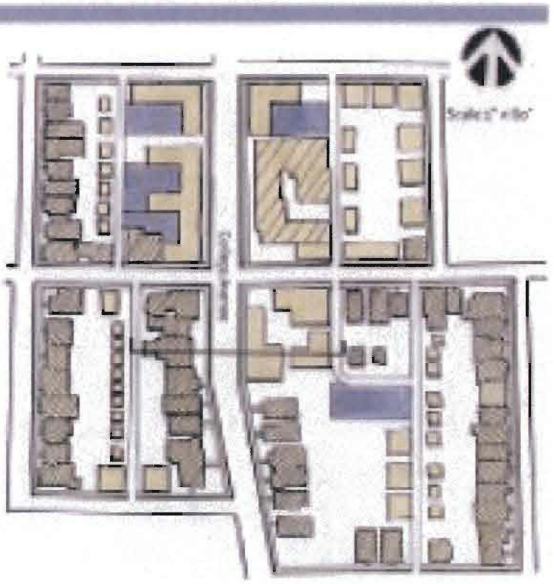
Alternative One- Single Use and Preservation

Alternative One Objectives
- Keep current, suitable buildings
- Including Housing, Retail and successful businesses
- Single use structures on opportunity sights
- Follows the current scale and density

Alternative One Figures

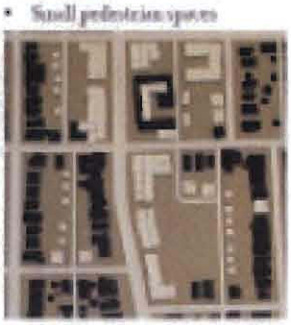
	Added Residential	Added Commercial
Square Feet	36,000	21,000
Number of Units	35 Units	40 Units
Parking Spaces	68 Spaces	80 Spaces





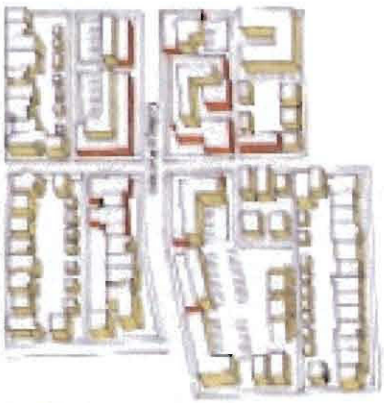
Alternative Two- Horizontal Use and Neighborhood Uses

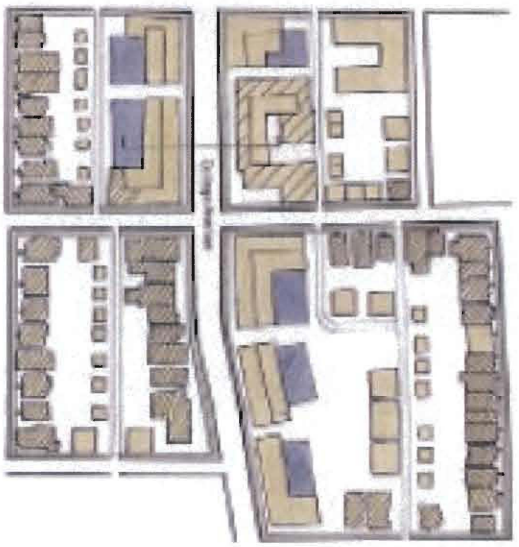
Alternative Two Objectives
- Follow neighborhoods desires
- Mixed use retail, office and residential
- Keeps residential units in good condition
- Develop NW corner horizontal mixed use
- Small pedestrian spaces



Alternative Two Figures

	Added Residential	Added Commercial
Square Feet	66,000	26,400
Number of Units	77 Units	32 Units
Parking Spaces	77 Spaces	69 Spaces



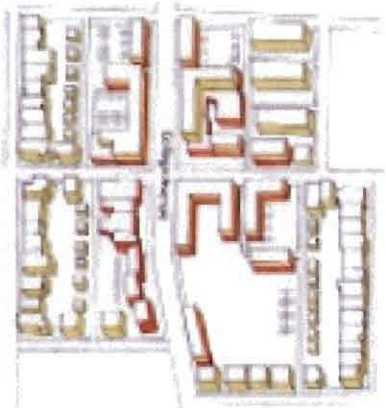


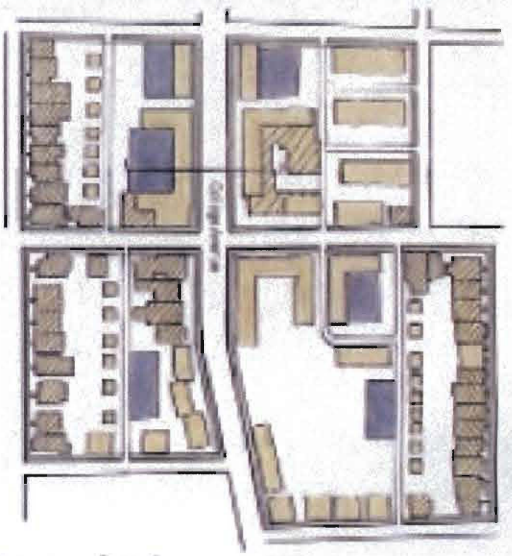
Alternative Three- Vertical Mixed Use and Character

Alternative Three Objectives
- Conserve and design character
- Implement mixed use 2- 3 stories with office, retail and residential
- Add density along College
- Design pedestrian spaces and green parks
- Vertical Mixed Use

Alternative Three Figures

	Added Residential	Added Commercial
Square Feet	84,000	84,000
Number of Units	126 Units	44 Units
Parking Spaces	126 Spaces	88 Spaces



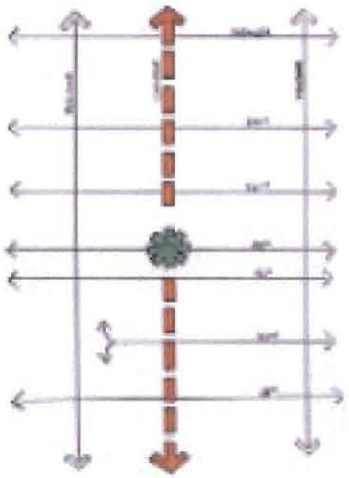


Legend
- Existing Buildings
- Proposed Buildings

Jeri Clawson | Plan 402 | Vera Adams | February 22, 2012

49th and College: Concept Plan

Vicinity Map



Site Plan

Objectives

- Keep context of the Neighborhood
- Vibrant Streetscape and Pedestrian Spaces
- Preserve Historical Structures

Program By Use

	Proposed Use Units	
	Square Feet	# of Units
Retail	15,000	15
Office	28,000	30
Residential	37,200	31
Apartments	23,400	18
Grocery Store	35,400	25
Parking		115

Section A: College Avenue

Pedestrian Plaza Space

Axonometric North West Corner

Section B: Full Site

38th and College Avenue Design by Brandon Bart

The intersection of 38th and College Avenue is the most southern intersection within the corridor and thus serves as a gateway. Being a main east-west thoroughfare, 38th Street and College Avenue intersection creates the most traffic volume within the corridor. The high traffic volume and gateway location create multiple opportunities for how this site could be designed. In my final concept design, I chose to celebrate the entrance into the College Avenue corridor and provide adequate land use options and density for such a high-traffic area. The southwest corner of the intersection consisted of a large, historical brick building that we decided to not change in my development design. However, the remaining three corners of the intersection where covered by vacant lots and commercial retail, such as Rally's fast food, Walgreens, and Dollar General. Because of this, the site held little historical significant and gave the opportunity for new types of development.

Phase 1 of the design process involved a context and site analysis of the intersections demographics and circulation. For this phase, a small group of four worked together to map, chart, and graph the data gathered throughout the analysis. Specifically, I was responsible for the analysis of the demographic census data for the area. The demographics of the College Ave. corridor have slight variations depending on the geographic location. The intersection at 38th and College Ave. is the most diverse in comparison to the rest of the corridors demographics. As the southern most point, this intersection is the gateway between the northern Indianapolis urban neighborhoods to the south and the Meridian-Kessler Neighborhood to the north. According to the 2010 United States Census data, at this location, the racial population consists of 74% African Americans to the north of the intersection at 38th Street and 84% African Americans to the south of the intersection. More importantly, a shocking discovery from the data found that

the median annual income for the Meridian-Kessler Neighborhood north of 38th was $56,200, while the median annual income south of the 38th and College intersection dropped to $30,000. This information along with some analytical mapping of the site allowed us to break away from our groups and begin developing alternative design options as Phase 2 of the project.

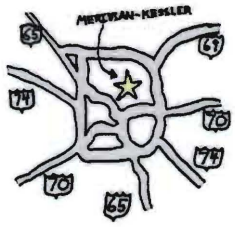
For Phase 2 of the design project, the group split and students individually worked on design options for the site. I presented alternatives for the development layout and land use. Due to the site's significance and transit-oriented development focus, it was important to maintain a high density in every alternative. Alternative 1 focused on the same type of single-use development already familiar along the College Avenue Corridor. This alternative caused the least disturbance to the area's existing buildings and had the least impact on a new purpose of the site. Alternative 2 was more drastic and focused on the creation of a horizontal mixed-use development. This type of development required a lot of long linear buildings that were split for different uses. An example of a horizontal mixed-use development is a strip mall. Although it added many new land uses to the site, it still did not create the height and density desired for a potentially prominent TOD site. Lastly, Alternative 3 focused on vertical mixed-use development. This design included three- to four-story buildings with retail on the ground floor and commercial or residential uses above. This alternative allowed a mixture of residents who can live on the site and visitors who could walk on the pedestrian-friendly ground floor for shopping and dining. Because of its increase in density, this alternative proved to be the best option. After selecting alternative 3, I then moved to the last phase of the project and began my final concept design for the site.

Phase 3 of the project was the most exciting and important phase. In this phase, I used the analysis information from Phase 1 and the vertical mixed-use alternative option from Phase 2 to

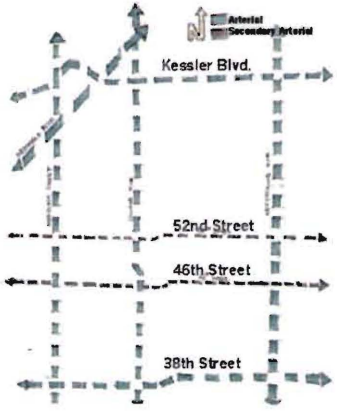
create a final concept design for the site at the intersection of 38th and College. For this phase, I selected the northwest corner as my primary focus. In my design it was important for me to celebrate the south entrance to the College Avenue. corridor. Because of this, I designed a grand open space in front of the development to serve as a landmark or park for pedestrians. Due to the possibility of a transit stop someday at this location, this open space could also serve as a waiting space for passengers. A mid-block pedestrian only street was also added onto the site to divide the large mass of buildings and provide additional pedestrian space for walking and shopping. It connects the TOD station along College Avenue to the parking in the back of the development. The remaining development on the site included a lot of dense vertical-mixed use development with retail on the ground floor and affordable housing residential units above. In the development facing south towards 38th street, upper level floors served as office space or institutional space for commercial uses. Overall, the development proposal offered 50,000 sq. ft. of residential space, 46,000 sq. ft. of retail space and 9,800 sq. ft. of commercial space. With all these land uses taken into consideration, the site also required a total of 98 parking spaces to serve these uses. These parking spaces were put in back of the development, hidden from street view (and accessible via the pedestrian walkway?). The buildings were placed near the street to optimize space in the back and to create a friendly urban pedestrian feel when walking along the sidewalk. The main objectives of this design were to create focus areas special to the corridor, to create the space for a safe and usable transit stop, and to create appealing and affordable mixed-use housing to bring residents and activity to the space.

38th and College

Meridian-Kessler Corridor

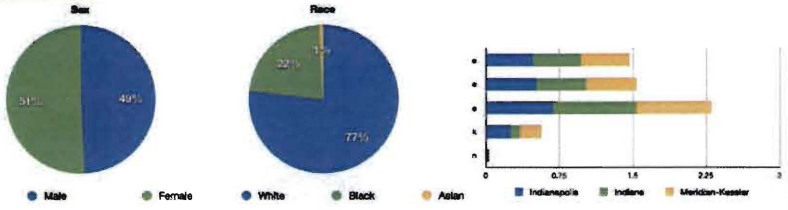


Meridian-Kessler



Site Map

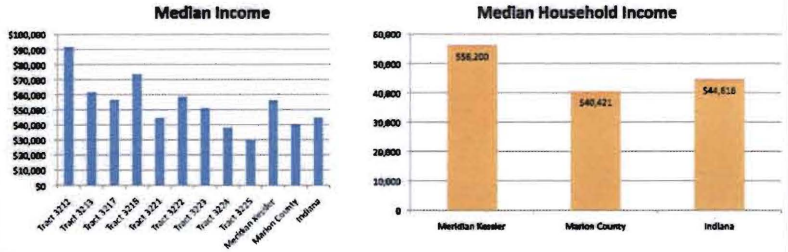
People



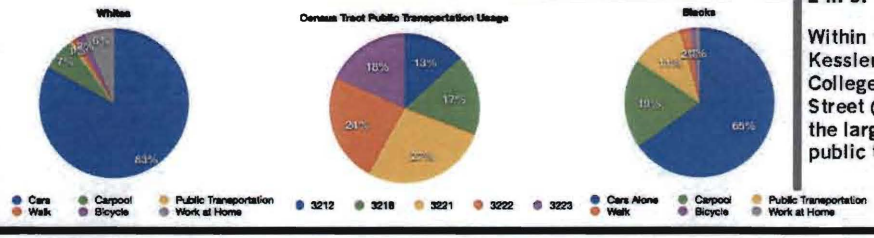
Housing

Meridian-Kessler	
Total:	14237
Built 2005 or later:	10
Built 2000 to 2004:	19
Built 1990 to 1999:	357
Built 1980 to 1989:	229
Built 1970 to 1979:	811
Built 1960 to 1969:	909
Built 1950 to 1959:	2337
Built 1940 to 1949:	2641
Built 1939 or earlier:	6924

Income



Transportation



Key Points

Land north of 38th Street consists of 74% African Americans and south of 38th Street consists of 84%

65% of the population in 38th and College are 39 yrs old and younger

In the 38th Street and College Ave. area, 43% of people have obtained only a high school diploma

The median income for the Meridian-Kessler Corridor is $56,200, and within 38th and College Ave. the median income drops to $30,000

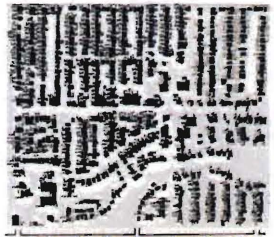
Within 38th and College, 47.7% of people rent their homes

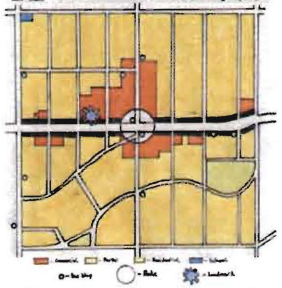
58% of the homes within 38th Street and College Ave. are single family homes

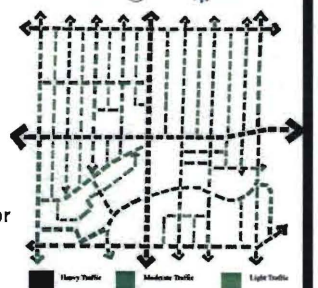
38th Street and College Ave. contains 20% of all vacant lots within the Meridian-Kessler Corridor

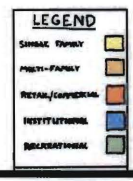
Within 38th Street and College Ave. 22% of the lots are vacant. 1 in 5.

Within the Meridian-Kessler Corridor, College and 38th Street (3221) has the largest usage of public transportation





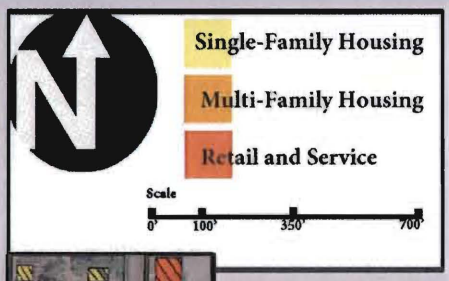


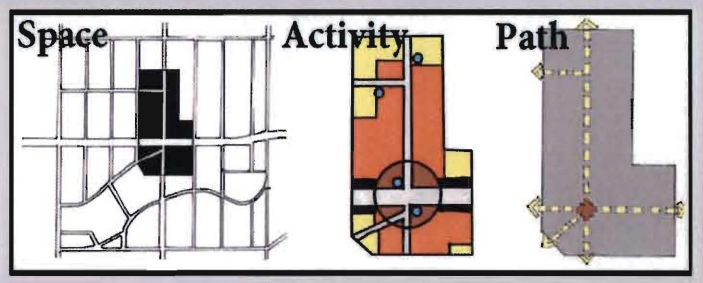


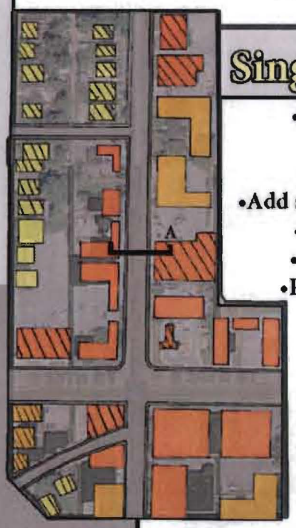
PLAN 202 SPRING 2012 harry davis, brandon bart, kait forbes, jeff neulieb

Opportunity Site

38th Street and College Avenue

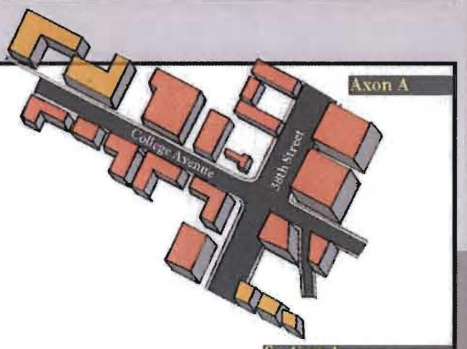






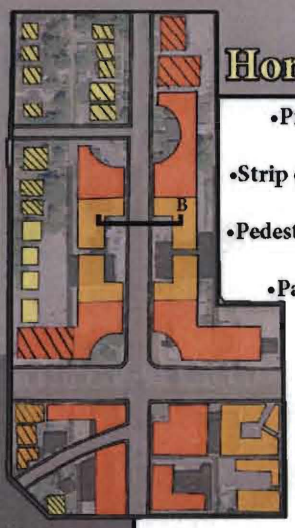
Single Use

Objectives
- Preserve many existing buildings
- Rally's kept in current location
- Move SW buildings to streetside
- Add strip of retail stores along College
- Additional multi-family housing
- Additional single-family housing
- Parking move to back of buildings



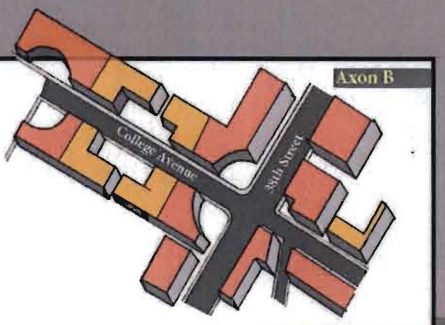
Specifications

Land Use	Number of Units	Square Ft.
Single-Family Housing	18	30,000
Multi-Family Housing	7	28,500
Commercial/Retail	19	71,000
Parking	-	46,000



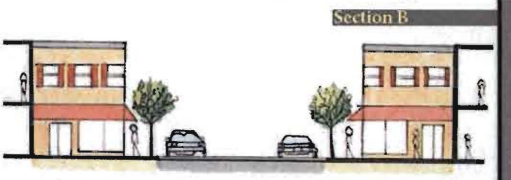
Horizontal Mixed Use

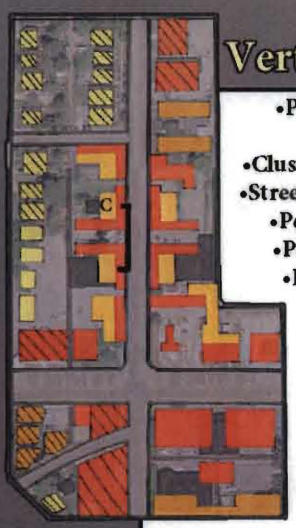
Objectives
- Preserve existing single-family housing
- Move SW Walgreens to streetside
- Strip of horizontal mixed use along College
- Creation of open spaces
- Pedestrian Friendly and Visually Appealing
- Additional multi-family housing
- Parking moved to backside of buildings



Specifications

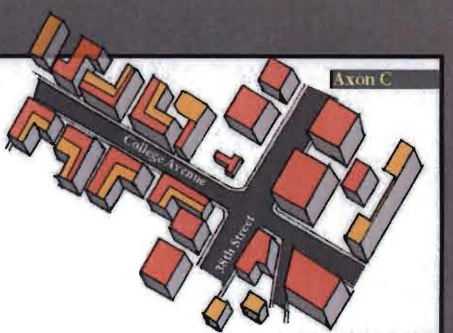
Land Use	Number of Units	Square Ft.
Single-Family Housing	17	24,000
Multi-Family Housing	10	45,000
Commercial/Retail	10	66,000
Parking	-	54,000





Vertical Mixed Use

Objectives
- Preserve existing single-family housing
- Move SW Walgreens to streetside
- Cluster of vertical mixed use along College
- Street side retail with second story housing
- Pedestrian Friendly with multiple paths
- Parking moved to backside of buildings
- Retail on first floor, apartments above

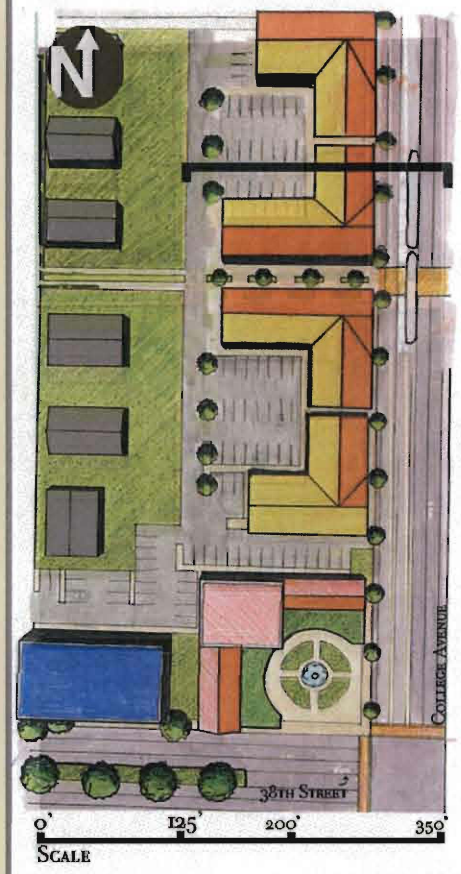


Specifications

Land Use	Number of Units	Square Ft.
Single-Family Housing	17	24,000
Multi-Family Housing	14	48,000
Commercial/Retail	10	84,000
Parking	-	53,000

38th and College Ave.

Concept Plan



Objectives

- **To Create Focus Areas Special To The Corridor**
  Open Space, Pedestrian Mall
- **To Create a Safe And Usable Transit Stop**
  Light Rail Stop on College Avenue in Center of Block
- **To Create Appealing and Affordable Mixed-Use Retail and Residential Housing**
  Retail on First Story With Residential Above

Context

- College and Kessler
- 54th and College
- 38th and College

Program

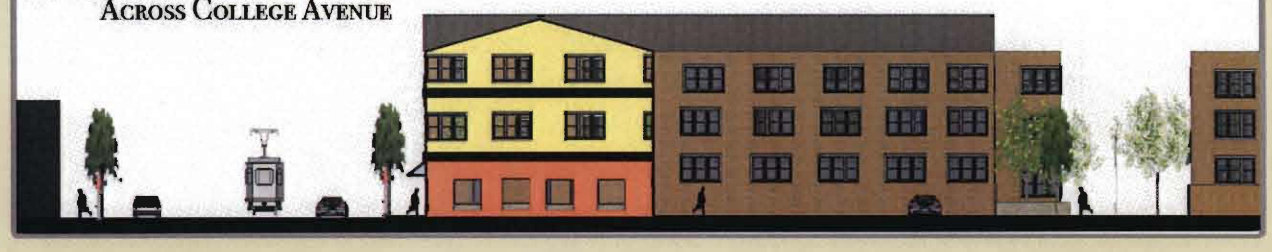
Parking	98 Spaces
Residential	50,000 sq./ft.
Retail	45,670 sq./ft.
Commercial	9,800 sq./ft.

Axon

NorthWest View

Section

Across College Avenue



Transit-Oriented Development in Indianapolis

Indy Connect is Central Indiana's Transportation Initiative that is focused on bringing long-term transportation options to the central Indiana region, beginning with Indianapolis. It is a coalition of three organizations that include the Indianapolis Metropolitan Planning Organization (MPO), Central Indiana Regional Transportation Authority (CIRTA), and IndyGo, the bus system in the capital city. The three organizations hope to spur and support future development in the Indianapolis region. "The MPO is the agency that is responsible for all of the transportation services and receiving federal funds for the airport, transit, and highway improvements." (Indy Connect Initiative, 2013a) Because of the unique governing system of Marion County that consists of a combined city and county government, the MPO coordinates with all levels of government, agencies, counties, towns, and with the Indianapolis Regional Transportation Council. The MPO focuses on long-range transportation planning and has a plan that guides development until 2035. (Indy Connect Initiative, 2013a) The second organization is the Central Indiana Regional Transportation Authority (CIRTA), which is a, "Quasi-governmental organization that strives to create a comprehensive system of transportation alternatives for Central Indiana." (Indy Connect Initiative, 2013a) CIRTA strives to create transportation opportunities that will connect the core of Indianapolis to all of its surrounding counties. (Indy Connect Initiative, 2013a) Finally, the third group is IndyGo or the Indianapolis Public Transportation Corporation (IPTC), which is the bus service provider for Indianapolis. "They determine routes, equipment, facilities, and the scope and standards of service to be provided." (Indy Connect Initiative, 2013a) These three organizations are the groups spearheading the new transit plan for Central Indiana.

The origin of this new transit plan began in 2010 when IPTC asked Central Indiana residents to review a draft of the 2035 Transportation Plan. This plan originally included bus, rail, and roadways with the goal of connecting people and connecting places. (Indy Connect Initiative, 2013b) This draft was also discussed throughout Central Indiana communities at hundreds of public meetings, displays, and community speaking engagements. In December of 2010 the Central Indiana leaders and public officials publicly supported the public transit options, which became a focus for the 2012 legislative session. In 2011, a phased approach to the Indy Connect plan was created, and the Indiana General Assembly gave local communities funding options to adopt the plan. In the 2013 session, the funding will be up for vote once again to gain approval for the implementation of the first stages of the plan. (Indy Connect Initiative, 2013b)

The plan itself is intended to connect people and places through local bus lines, rapid transit, roadways, and pedestrian and bike pathways. The plan is a phased implementation that is set for 10 years with a specific focus on Marion and Hamilton counties. (Indy Connect Initiative, 2013c) The other surrounding counties are welcome to join in within this time period or after the 10 years in the next phase. Goals to improve the existing infrastructure or set the stage for the future lines will be set for the four specified types of transportation: buses, trains, pedestrians, and bicycles. (Indy Connect Initiative, 2013c)

The first type of transportation the plan focuses on is the existing bus lines. The goal is to double the bus service in the next 10 years. According to IndyGo, "This would mean more service, less wait time, longer hours of service, more direct routes, and more access to all of Indianapolis' jobs, healthcare, education, and shopping." (Indy Connect Initiative, 2013d) The buses would cut headway times by over 50 percent, add an additional 10 cross-town routes,

provide seven-day service with extended hours, and a total of 38 additional bus routes. It would also add six express bus routes, more bus shelters, benches, and bike racks, more sidewalks, and updated fare collection. (Indy Connect Initiative, 2013d)

The second type of infrastructure would increase bike and pedestrian pathways to expand on the existing Regional Bikeways Plan, which aims to provide functional, convenient, and connected system of bikeways for all cyclists. (Indy Connect Initiative, 2013e) The third component would be enhancements and expansions of the existing roads, bridges, and sidewalks infrastructure throughout Indianapolis to improve safety and usability for both walkers and cyclists. (Indy Connect Initiative, 2013f)

Finally the fourth type of new transit the plan will invest in is rapid transit lines. This part of the plan will impact College Avenue along our developments at the two key intersections mentioned earlier. The proposal is for five new rapid transit lines that build on the existing services on heavily travelled corridors throughout the city. (Indy Connect Initiative, 2013g) According to IndyConnect, "Rapid transit uses dedicated lanes or rails so it is separated from traffic, has priority at crossings or intersections, and can operate almost every 5 minutes. They stop less frequently than regular buses and stops are approximately every half mile apart." (Indy Connect Initiative, 2013g)

There are two types of rapid transit. The first is light rail, which is a permanent line that runs on an installed rail. The second option is a bus rapid transit, which is a bus that has characteristics of a train, but has flexible routes. (Indy Connect Initiative, 2013h) The type of rapid transit that Indianapolis has chosen to implement would be bus rapid transit (BRT). The lines include red line which runs from Carmel to downtown Indianapolis to Greenwood, the blue

line which begins at the airport goes to Union Station, and then to Cumberland, the green line goes from downtown Indianapolis to Noblesville, the purple line goes from Eagle Creek Airpark to Lawrence, and the orange line goes from University of Indianapolis to Carmel. (Indy Connect Initiative, 2013g)

The red line is the specific line that would run down College Avenue. It would begin at the Palladium in Carmel and would stop in Broad Ripple, Meridian-Kessler, Ivy Tech, Eli Lilly, Garfield Park, Emmerich Manual High School, and Southgate Park before ending in Greenwood. (Indy Connect Initiative, 2013g) This corridor is 25 miles long and connects some of the fastest growing population and businesses on the key commuting corridors. (Indy Connect Initiative, 2013i) The red rapid transit line is currently undergoing a more detailed study. Analysts are looking into route and station areas, modes and operations, and features of the route. The final details of the study will determine the exact route of the red line that varies between Meridian, College, and Keystone, which will account for market and traffic analyses and it will define the station locations. (Indy Connect Initiative, 2013j) The study will also determine if rail or bus will be used for the line, the schedule, frequency of service, capacity, and station locations that will be evaluated based on ridership and fares. Finally the study will determine the specific type of vehicle, station features and amenities, location of dedicated land and signal prioritization. (Indy Connect Initiative, 2013j)

Recently Indy Connect has begun to finalize details about the red line. (2013j) Currently, there are two alternatives with three issue areas. Fortunately these areas are all outside of the College Avenue Corridor, and thus do not specifically apply to this thesis project. Indy Connect has determined that bus rapid transit will be the transit mode for the red line because it is flexible and has smaller start-up costs. The service for the new red line will run 20 hours per day on

weekdays, 18.5 hours on Saturdays, and 14.5 hours on Sundays. There will be six total hours of peak travel time per day, evenly separated between morning commute times and evening commute times. The time between bus arrivals, or headways, would be 10 minutes during the peak periods on weekdays and 15 minutes during off-peak hours. On the weekends, the headways would be 20 minutes during the daytime and 30 minutes during the nighttime. The line would start on College Avenue and travel south until 38th Street, where it would turn west and travel along 38th to Meridian. As of now this is the preferred route; there are no other proposed alternatives that IndyGo or Indy Connect has mentioned. Up to 19 articulated BRT vehicles will service this line based on future ridership numbers. The type of fuel used for the buses on the red line has yet to be determined. (Indy Connect Initiative, 2013j)

The College Avenue section of the line will have stops every half-mile along the BRT route. These include the intersections of 96th, 73rd, 62nd, 54th, 46th, and 38th. (Indy Connect Initiative, 2013j) Therefore these are the intersections that will have the most dense and focused development on them. Fortunately, Indy Connect has chosen to make its stops every half-mile. Because of this, development along the corridor theoretically could be spread evenly. As taught in most planning studios, most people are willing to walk a quarter of a mile to get to any service or bus stop, but they won't walk farther. The stops are spread so that even people in the middle, between the two stops, would only need to walk a quarter of a mile, and therefore the corridor has the potential to become a completely walkable corridor.

According to IndyConnect (2013j), an important factor of red line down College Avenue is determining what lanes will be dedicated to the BRT. Having dedicated lanes will ensure there are no delays from traffic flow, will improve consistency, will reduce recovery time for bus stops, and will cut operations and maintenance costs. It was determined that the BRT would have

right of way along corridors with dedicated parking lanes or where local IndyGo buses operated. The Indy Connect buses would have the ability to safely pass the IndyGo bus services to ensure headway times. Dedicated lanes have been identified along a few sections of the route, but one specific section is the College Corridor. (Indy Connect Initiative, 2013j)

Three configurations were considered for the BRT along College between 62nd Street and 38th Street. These dedicated lanes eliminate on-street parking in peak hours when the BRT is utilizing the parking lane. During the off-peak hours the BRT would operate in the normal lane of traffic adjacent to the parking lane. (Indy Connect Initiative, 2013j) The first option would preserve all parking lanes, and the BRT would operate in mixed traffic in both directions during peak and off-peak hours. The second alternative would have the existing parking lanes northbound and southbound converted into rapid transit-only lanes in the peak hour of each direction (southbound in the morning and northbound in the evening). In the off-peak hours in the other direction parking would be permitted and the BRT vehicle would operate mixed in traffic. The third alternative would have the same conversion of the parking lane for peak hours, but in this scenario one of the two northbound lanes would be replaced with a raised median or left turn lanes. (Indy Connect Initiative, 2013j)

Along the College Avenue Corridor, Indy Connect has expressed that its preferred alternative is the first option, because it has the least impact on on-street parking, and allows for transit signal priority at the intersections along College Avenue. "Transit signal priority is a system that extends a green light or shortens a red light when the bus is behind schedule, thus allowing it to have faster travel time to get back on schedule." (Indy Connect Initiative, 2013j) Another option would be to implement queue jumps that are, "Treatments which reduce the delay at signal intersections by restricting the right line or right-turn lane for bus use only. Buses

would be exempt from the right turn restriction, thus jumping the line of cars in the adjacent lanes." (Indy Connect Initiative, 2013j) Both options are currently in use in Indianapolis and have been proven to work. Therefore, implementing both along with land dedication programs would help ensure a much less delayed BRT system.

A major source of funding for these new plans will come from federal and local funding projects. The federal funding will come from the National Environmental Policy Act (NEPA) program, but securing this funding may require refinements of the project in specific areas to meet guidelines. (Indy Connect Initiative, 2013j) The red line is eligible to apply for a small-start project under the Federal Transit Administration's Fixed Guideway Capital Investment Grants. A preliminary study shows that the red line is likely to receive at least a medium rating for project justification. The project would be more eligible if it would increase ridership, promote denser mixed-use development, and include affordable housing. The Federal Transit Administration requires that the project be owned, implemented, and operated by a local entity to be eligible for any funding. (Indy Connect Initiative, 2013j) Other federal funding includes the competitive TIGER Grant Program which can award as much as $20 million. Other potential funds include the Surface Transportation Program and the Congestion Mitigation and Air Quality Improvement Program. The local funding is currently going through the Indiana House and Senate and is awaiting approval. (Indy Connect Initiative, 2013j)

According to the Indiana General Assembly, in 2009 HB 1660 was approved which approved the direct funding for transit projects, such as the red line, through property taxes, special COIN taxes, income taxes, or a food and beverage taxes. This bill created local transit programs, which allowed the surrounding Indianapolis counties to form regional transportation districts with the power to create, maintain, or improve transit facilities and plan and finance the

new systems. The counties use the individual tax funds to support their fair share of the transit costs. The bill allows the governor to appoint a deputy commissioner for the Department of Transportation to manage the public transit responsibilities. (2009)

A second bill that was defeated by the House in 2012 is HB 1073, which would have allowed a city or county outside of Marion County to provide revenue to public transportation through adjusted gross income tax, county option income tax, or county economic development income tax. They could authorize a transit authority, which would be allowed to construct or acquire a public transportation facility, provide public transit service, and issue bonds and incur debt. The bill issued the Indiana finance authority to the power to issue bonds for the metropolitan transit district. (Indiana General Assembly, 2013a) Finally a third bill, HB1011, was passed in 2013. The bill states that certain counties in central Indiana may not enter into inter-local cooperation where all of these counties provide public transportation services throughout the counties. This bill also establishes a central Indiana transit study committee that is concerned with specialized transit issues. It establishes a deadline of March 2014 to launch the joint districts for transit. (Indiana General Assembly, 2013b)

For the plan to move forward, these pieces of legislation will need to be approved and implemented. For implementation, each county will need to put the issues on the ballot and vote to become a part of the new transit system and increase taxes. The first counties that will be able to vote are Hamilton and Marion, and these issues could go to ballots as soon as 2013 or 2014. The first stages of implementation of the plan will be the blue line, then the green line, and the third line to be created would be the red line. This means the Bus Rapid Transit down College Avenue is a long-term plan for Indianapolis that may be completed within the next 10 years.

The Future of Indianapolis

Today, Indianapolis is the 13th largest city in the United States in terms of population. However, Indy is also ranked 98th in terms of public transportation size. (Indy Connect Initiative, 2013j) The most desired places to live in the United States are very closely linked to the top-ranking cities with the best public transportation. Examples of these cities include Austin, San Francisco, Seattle, Portland, Boston, Denver, and Nashville. The millennial generation in our society today finds dense, urban, transit-oriented cities to be appealing for a better quality of life. Because of this, Indianapolis is failing to provide quality transportation lifestyle incentives to attract young professionals to its full potential. Instead, Indianapolis' growth relies heavily on capturing two demographics: 1) the boomerang population of people who have moved away from the state and returned years later, and 2) young people from smaller Indiana cities and towns who are eager to live in an urban environment. Although this population growth strategy has worked in past years, it is not sustainable for a continually growing city such as Indianapolis. By creating this Indy Connect transit system, Indianapolis will have a new tool to attract residents. Many Indianapolis planners, developers, and elected officials believe this transit system will create a significant change in development and growth patterns for the city. As fellow planning students, we also believe in the success of this project. With the Indy Connect initiative on the table, the future for Indianapolis is brighter than ever. The city already has many assets and modern urban amenities, such as the nationally recognized Culture Trail system. When combined with a fully operable public transit system, Indianapolis will become a leader in desired places to live by people in all age groups.

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